

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claim 1 (previously presented) An isolated or recombinant polypeptide having endoglucanase or cellulase activity having an amino acid sequence having at least 70% sequence identity to a sequence as set forth in SEQ ID NO:46, or encoded by a nucleic acid having at least 70% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 2 (previously presented) An isolated or recombinant polynucleotide sequence encoding an endoglucanase or cellulase of claim 1.

Claim 3 (canceled)

Claim 4 (previously presented) The isolated or recombinant polynucleotide of claim 2, wherein the polynucleotide is isolated from a prokaryote.

Claim 5 (previously presented) A vector comprising a nucleic acid having a sequence as set forth in claim 2 or claim 32 or claim 37.

Claim 6 (previously presented) The vector of claim 5, wherein the vector comprises a plasmid.

Claim 7 (previously presented) The vector of claim 5, wherein the vector comprises virus-derived sequences.

Claim 8 (previously presented) A host cell comprising the vector of claim 5.

Claim 9 (previously presented) The host cell of claim 8, wherein the cell is prokaryotic.

Claims 10 to 13 (canceled)

Claim 14 (previously presented) A method for producing an enzyme comprising growing a host cell of claim 8 or claim 53 under conditions which allow the expression of the nucleic acid and isolating the enzyme encoded by the nucleic acid.

Claim 15 (previously presented) A method for degrading carboxymethylcellulose comprising contacting a carboxymethylcellulose with an effective amount of a polypeptide of claim 1.

Claim 16 (previously presented) A method for hydrolyzing a beta 1,4 glycosidic bond in a cellulose comprising contacting an effective amount of a polypeptide of claim 1 with the cellulose to hydrolyze the glycosidic bond.

Claim 17 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the polypeptide is encoded by a nucleic acid having at least 90% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 18 (previously presented) The isolated or recombinant polypeptide of claim 17, wherein the sequence identity is at least 95%.

Claim 19 (previously presented) The isolated or recombinant polypeptide of claim 37, wherein the nucleic acid that hybridizes under stringent conditions to a sequence as set forth in SEQ ID NO:45 has at least at least 97% sequence identity to SEQ ID NO:45.

Claim 20 (previously presented) The isolated or recombinant polypeptide of claim 19, wherein the nucleic acid has a sequence as set forth in SEQ ID NO:45.

Claim 21 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the polypeptide has at least 90% sequence identity to a sequence as set forth in SEQ ID NO:46.

Claim 22 (previously presented) The isolated or recombinant polypeptide of claim 21, wherein the polypeptide has at least 95% sequence identity to a sequence as set forth in SEQ ID NO:46.

Claim 23 (previously presented) The isolated or recombinant polypeptide of claim 22, wherein the polypeptide has a sequence as set forth in SEQ ID NO:46.

Claim 24 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the polypeptide has endoglucanase activity.

Claim 25 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the polypeptide has cellulase activity.

Claim 26 (previously presented) The isolated or recombinant polypeptide of claim 25, wherein the cellulase activity comprises a carboxymethyl cellulase activity.

Claim 27 (currently amended) An isolated or recombinant polypeptide having endoglucanase or cellulase activity comprising at least 30 amino acid residues of a polypeptide having at least 70%, 90% or 95% sequence identity an amino acid sequence as set forth in SEQ ID NO:46.

Claim 28 (currently amended) The isolated or recombinant polypeptide of claim 27, wherein the polypeptide comprises at least 50 amino acid residues of a polypeptide having at least 70%, 90% or 95% sequence identity an amino acid sequence as set forth in SEQ ID NO:46.

Claim 29 (previously presented) An isolated or recombinant polypeptide having endoglucanase or cellulase activity comprising at least 30 amino acid residues of a polypeptide having an amino acid sequence as set forth in SEQ ID NO:46.

Claim 30 (previously presented) The isolated or recombinant polypeptide of claim 29, wherein the polypeptide comprises at least 50 amino acid residues.

Claim 31 (previously presented) An isolated or recombinant polypeptide having endoglucanase or cellulase activity comprising an amino acid sequence as set forth in SEQ ID NO:46 and having at least one conservative amino acid substitution, wherein the conservative amino acid substitution comprises: a replacement, one for another, among the aliphatic amino acids Ala, Val, Leu and Ile; or an interchange of the hydroxyl residues Ser and Thr; or an exchange of the acidic residues Asp and Glu; or a substitution between the amide residues Asn and Gln; or an exchange of the basic residues Lys and Arg; or a replacement among the aromatic residues Phe, Tyr.

Claim 32 (previously presented) An isolated or recombinant nucleic acid encoding a polypeptide having endoglucanase or cellulase activity and having a nucleic acid sequence having at least 70% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 33 (previously presented) The isolated or recombinant nucleic acid of claim 32, wherein the nucleic acid sequence has at least 90% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 34 (previously presented) The isolated or recombinant nucleic acid of claim 33, wherein the nucleic acid sequence has at least 95% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 35 (previously presented) The isolated or recombinant nucleic acid of claim 34, wherein the nucleic acid sequence hybridizes under stringent conditions to a sequence as set forth in SEQ ID NO:45 and has at least 97% sequence identity to a sequence as set forth in SEQ ID NO:45.

Claim 36 (currently amended) The isolated or recombinant nucleic acid of claim 35, wherein the nucleic acid sequence has a sequence as set forth in SEQ ID NO:45, or encodes an amino acid sequence as set forth in SEQ ID NO:46.

Claim 37 (previously presented) An isolated or recombinant nucleic acid encoding a polypeptide having endoglucanase or cellulase activity, wherein the nucleic acid hybridizes under stringent conditions to a sequence as set forth in SEQ ID NO:45, and the stringent conditions comprise a wash step comprising a wash for 30 minutes at room temperature in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by 30 minute wash in fresh solution at T_m-10°C.

Claim 38 (previously presented) The host cell of claim 8, wherein the cell is a plant cell.

Claim 39 (previously presented) The host cell of claim 8, wherein the cell is a yeast cell, a bacterial cell, a fungal cell, an insect cell or an animal cell.

Claim 40 (previously presented) A probe for identifying or isolated a nucleic acid encoding a polypeptide having endoglucanase or cellulase activity, the probe comprising at least 15 contiguous nucleotides of a sequence as set forth in claim 32, wherein the probe hybridizes under stringent conditions to a sequence as set forth in SEQ ID NO:45, and the stringent conditions comprise a wash step comprising a wash for 30 minutes at room temperature in a solution

comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by 30 minute wash in fresh solution at T_m-10°C.

Claim 41 (previously presented) The probe of claim 40, wherein the probe comprises at least 25 contiguous nucleotides.

Claim 42 (previously presented) The probe of claim 41, wherein the probe comprises at least 35 contiguous nucleotides.

Claim 43 (previously presented) The probe of claim 42, wherein the probe comprises at least 50 contiguous nucleotides.

Claim 44 (previously presented) A method for converting plant biomass into fuels and chemicals comprising contacting a plant biomass comprising carboxymethylcellulose with an effective amount of a polypeptide of claim 1, thereby enzymatically converting the plant biomass into a fuel or a chemical.

Claim 45 (previously presented) The method of claim 15 or 16, wherein the polypeptide is employed in the detergent and textile industry.

Claim 46 (previously presented) The method of claim 15 or 16, wherein the method produces an animal feed.

Claim 47 (previously presented) The method of claim 15 or 16, wherein the polypeptide is employed in waste treatment for degrading carboxymethylcellulose or for hydrolyzing a beta 1,4 glycosidic bond in a cellulose.

Claim 48 (previously presented) The method of claim 15 or 16, wherein the polypeptide is employed in a fruit juice industry or a brewing industry for the clarification or extraction of juices or brews.

Claim 49 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the composition of the polypeptide further comprises a textile.

Claim 50 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the composition of the polypeptide further comprises a feed.

Claim 51 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the composition of the polypeptide further comprises a detergent.

Claim 52 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the composition of the polypeptide further comprises a juice or a brew.

Claim 53 (currently amended) A host cell comprising a heterologous nucleic acid having a sequence as set forth in claim 37.

Claim 54 (previously presented) The isolated or recombinant polypeptide of claim 37, wherein the nucleic acid that hybridizes under stringent conditions to a sequence as set forth in SEQ ID NO:45 has at least at least 95% sequence identity to SEQ ID NO:45.

Claim 55 (previously presented) The isolated or recombinant polypeptide of claim 1, wherein the cellulose activity comprises a carboxymethylcellulose activity.